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Contents

Restoration of Kids Leg Function Using Exoskeleton Robotic Leg (<i>ExRoLEG</i>) Device	335
Mohd Azrul Hisham Mohd Adib, Szeto Yang Han, Prashant Raj Ramani, Low Jian You, Law Ming Yan, Idris Mat Sahat and Nur Hazreen Mohd Hasni	
Simulated Kalman Filter Algorithm with Improved Accuracy	343
Mohd Falfazli Mat Jusof, Ahmad Azwan Abd Razak, Shuhairie Mohammad, Ahmad Nor Kasruddin Nasir, Mohd Helmi Suid, Mohd Ashraf Ahmad and Zuwairie Ibrahim	
Initial Study of Multiple Excitation Source for Electrical Resistance Tomography in Steel Pipe Application	353
Yasmin Abdul Wahab, Syazwani Amanina Syakyeen, Zainah Md. Zain, Normaniha Abd Ghani and Maziyah Mat Noh	
Simultaneous Perturbation Stochastic Approximation Optimization for Energy Management Strategy of HEV	361
Muhammad Fadhlan Afif Nazri and Muhammad Ikram Mohd Rashid	
Part III Applied Electronics and Computer Engineering	
Image Processing-Based Flood Detection	371
Angga Ariawan, Dwi Pebrianti, Ronny, Yudha Maulana Akbar, Lestari Margatama and Luhur Bayuaji	
Enhancement on Stain Detection for Automatic Handwashing Audit Vision System	381
Faradila Naim, Muhammad Aizat Romaino and Rosyati Hamid	
Classification of Transient Facial Wrinkle	391
Rosdiyana Samad, Mohammad Zarif Rosli, Nor Rul Hasma Abdullah, Mahfuzah Mustafa, Dwi Pebrianti and Nurul Hazlina Noordin	

Classification of Transient Facial Wrinkle



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Abstract Classification of transient wrinkle is an important application in research related to the skin aging, facial expression and skin analysis. Many researches have been done in the detection or classification of wrinkle, but it still needs some improvement in the algorithms, either in feature extraction part or classification. In this study, classification of transient wrinkle is proposed by using wrinkle features that extracted from the combination algorithms of Gabor wavelet and Canny operator. The facial wrinkle features are then classified by using artificial intelligent method which are Artificial Neural Network (ANN) and K-Nearest Neighbors (KNN). These two classifiers are trained and tested, and then the performance of each classifier is compared to getting the higher accuracy. 130 face images from various sources are used in the experiments, 65 of the total face images contains wrinkles on the forehead. The results show that ANN classifier only achieves 96.67% accuracy, while the KNN classifier obtained the highest accuracy with 100%. The comparison demonstrates that KNN works well in this classification. This result also proved that the extraction of facial wrinkle using a combination of Gabor and Canny detector is successful.

Keywords Facial wrinkle · Gabor wavelet · K-nearest neighbor · Classification

1 Introduction

Researchers have developed numerous algorithms for extracting the information from the human face to be used for the computer vision application. This is because the human face conveys considerable amount of non-verbal information such as gender, age, expression, etc. [1]. One of the representative feature of face that can be obtained from face image is a wrinkle features, which can be cooperated in image-

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391

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